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**United States Patent** [19]

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[54] **INFORMATION ORGANIZATION AND COLLABORATION TOOL FOR PROCESSING NOTES AND ACTION REQUESTS IN COMPUTER SYSTEMS**

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[58] **Field of Search** ..... **707/1, 100, 104, 707/2, 3, 4, 5, 6, 102, 103, 200, 201; 704/9, 270, 275**

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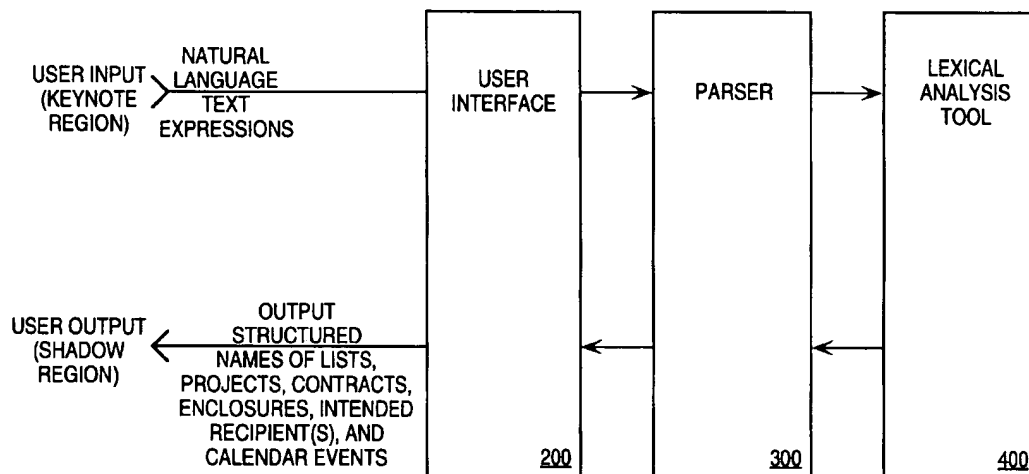
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[57] **ABSTRACT**

A natural language-based information organization and collaboration tool for a computer system is disclosed. The present invention includes an apparatus and method for processing text expressions in a computer system, the apparatus including: 1) an object database defining an information object with an associated keyword; 2) a user input device for receiving an input text expression; 3) a parsing device for identifying the keyword in the input text expression, the parsing device including functions for linking the input text expression to the information object based on the keyword identified in the input text expression; and 4) a user output device for displaying to the user the identity of the information object to which the input text expression was linked. The apparatus of the present invention further includes supplemental information in the object database which is related to the information object, the user output device further including functions for displaying the supplemental information when a corresponding keyword is identified in the input text expression. The apparatus of the present invention further includes a method and apparatus for collaboration between users of a time and project management system.

**37 Claims, 26 Drawing Sheets**

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ABSTRACT:

A natural language-based information organization and collaboration tool for a computer system is disclosed. The present invention includes an apparatus and method for processing text expressions in a computer system, the apparatus including: 1) an object database defining an information object with an associated keyword; 2) a user input device for receiving an input text expression; 3) a parsing device for identifying the keyword in the input text expression, the parsing device including functions for linking the input text expression to the information object based on the keyword identified in the input text expression; and 4) a user output device for displaying to the user the identity of the information object to which the input text expression was linked. The apparatus of the present invention further includes supplemental information in the object database which is related to the information object, the user output device further including functions for displaying the supplemental information when a corresponding keyword is identified in the input text expression. The apparatus of the present invention further includes a method and apparatus for collaboration between users of a time and project management system.

37 Claims, 28 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 26

CLAIMS:

We claim:

1. An apparatus for processing text expressions in a computer system, the apparatus comprising:

a user interface for receiving a free-form input text expression including at least one keyword;

an object database defining an information object with an associated keyword;

a parsing device for identifying the at least one keyword in the input text expression, the parsing device creating a link between the input text expression and the information object based on the keyword identified in the input text expression; and

a memory for storing the free-form input text expression and the link to the information object.

2. The apparatus as claimed in claim 1 wherein the object database includes supplemental information related to the information object, the apparatus further including a function for displaying the supplemental information when a corresponding keyword is identified in the input text expression.

3. The apparatus of claim 1, wherein the information object comprises a keynote.

4. The apparatus of claim 3, wherein the keynote may be a shared keynote, shared among multiple users, or a personal keynote.

5. The apparatus of claim 3, wherein the keynote is an action, a memo, a personal note, an action request, or FYI message.

6. The apparatus of claim 1, wherein the parsing device further comprises a lexical analysis tool to partition the input text expression into a plurality of tokens.

7. The apparatus of claim 6, wherein the tokens comprise sequential or adjacent portions of the input text between delimiters.

8. The apparatus of claim 7, wherein the parser identifies the tokens and links information associated with the tokens to the input text expression.

9. The apparatus of claim 1, further comprising a user output device for displaying to the user the identity of the information object to which the input text expression was linked.

10. A system for processing text expressions to facilitate organization, the system comprising:

a user interface for receiving user input in a natural language format;

a parser for extracting key words from the user input and linking the user input to information objects corresponding to the key words; and

the user interface further for displaying the user input and the linked information objects to the user.

11. The system of claim 10, wherein the information objects comprise one or more of the following: lists, projects, contacts, e-mail addresses, enclosed document identifiers, and events having date/time for use in a calendar.

12. The system of claim 10, wherein the linked information objects are displayed by the user interface in a shadow object associated with the user input.

13. The system of claim 10, wherein the key words comprise names of persons, names of projects, times, dates, types of notes.

14. The system of claim 13, wherein the key words are recognized based on context.

15. The system of claim 13, wherein the types of notes comprise to do lists, appointments, reminders, calendar entries, FYIs, action items, or electronic mail messages.

16. The system of claim 10, wherein the parser further comprises a lexical analysis tool for partitioning the user input into a plurality of tokens.

17. The system of claim 16, wherein the tokens are text between specified delimiters.

18. The system of claim 17, wherein the specified delimiters are stored in at least one database.

19. The system of claim 18, wherein the parser further compares the tokens to keywords.

20. The system of claim 19, wherein the parser further suggests adding the token to the key words, if the token is not found in the key words.

21. A method of extracting information from non-standard inputs, the method for organizing information, the method comprising:

receiving input text;

parsing the user input to identify tokens within the input text;

matching the tokens to keywords having associated information;

for matched tokens, linking the information associated with the keyword to the input text.

22. The method of claim 21, wherein said step of parsing comprises:

identifying delimiters;

identifying tokens as terms between delimiters.

23. The method of claim 21, wherein the step of receiving input text comprises receiving a message from another user including the input text, or having a user enter text directly.

24. The method of claim 21, further comprising:

generating a shadowbox associated with the input text, the shadowbox including the associated information associated with the keywords with the input text.

25. The method of claim 24, further comprising:

identifying the type of the input text received, the type comprising one or more of the following: a to do list, an appointment, a reminder, a calendar entry, an FYI, an action item, or an electronic mail message.

26. The method of claim 21, wherein the step of matching tokens to keywords comprises:

determining if the token exists in a list of keywords;

if a keyword is found, declaring a match; and

if no keyword is found, suggesting the token as a possible keyword.

27. The method of claim 26, wherein the step of suggesting the token comprises permitting the user to select the token as a keyword.

28. The method of claim 26, wherein the step of suggesting the token as a possible keyword comprises linking the token to the input text, indicating that the token is a suggestion.

29. The method of claim 21, wherein the associated information associated with the keyword comprise one or more of the following: lists, projects, contacts, e-mail addresses, enclosed document identifiers, and date/time events for use in a calendar.

30. The apparatus of claim 1, further comprising a network connection for accessing the network and retrieving the information object through the network.

31. The apparatus of claim 1, wherein the network is the Internet.

32. The system of claim 1, wherein the information objects corresponding to the keywords are located on another system.

33. The system of claim 32, further comprising a database on another system, the database including the information objects corresponding to the keywords.

34. The system of claim 33, wherein the database is accessed through the Internet.

35. The method of claim 21, wherein the associated information is on another system.

36. The method of claim 35, wherein the other system is accessed through a network connection.

37. The method of claim 36, wherein the network connection is an Internet connection.